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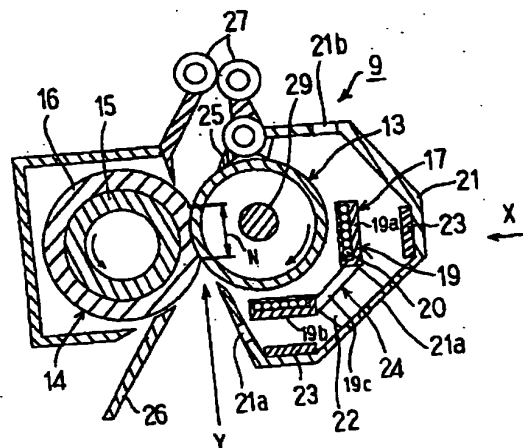
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## (54) 【発明の名称】 定着装置

## (57) 【要約】

【課題】 磁界発生手段において発生する磁束の漏洩を防止する。

【解決手段】 電磁誘導加熱により記録媒体上にトナーを定着する定着装置において、磁性体からなる定着ローラ13と、該定着ローラに押圧される加圧ローラ14と、前記定着ローラの外周に配設される磁界発生手段17と、該磁界発生手段の定着ローラとは反対側に配設された磁束捕捉部材23とを備えたことを特徴とする定着装置。



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## 【特許請求の範囲】

【請求項1】電磁誘導加熱により記録媒体上にトナーを定着する定着装置において、磁性体からなる定着ローラと、該定着ローラに押圧される加圧ローラと、前記定着ローラの外周に配設される磁界発生手段と、該磁界発生手段の定着ローラとは反対側に配設された磁束捕捉部材とを備えたことを特徴とする定着装置。

【請求項2】前記磁束捕捉部材を磁界発生手段の励磁コイルの向きに合わせて分割して配設したことを特徴とする請求項1記載の定着装置。

【請求項3】前記磁束捕捉部材の励磁コイルからの距離を、励磁コイルと定着ローラの距離より遠く設定することを特徴とする請求項2記載の定着装置。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、電子写真法を用いる複写機、プリンタ、ファックス等の画像形成装置において、特に、記録媒体上に転写されたトナー像を電磁誘導加熱により定着する定着装置に関する。

## 【0002】

【従来の技術】上記画像形成装置においては、感光体等の像担持体上に静電潜像を形成し、この静電潜像をトナー像に現像した後、トナー像を記録媒体上に転写し、この記録媒体上に転写されたトナー像を定着装置により定着するようにしている。従来、この定着装置として電磁誘導加熱により定着する方式が種々提案されている。例えば、特許第2616433号公報においては、定着ローラに加圧ローラとの接触部を除く外周に沿って円弧状に磁界発生手段を配設する方式を提案している。

## 【0003】

【発明が解決しようとする課題】しかしながら、上記従来の定着装置においては、加熱される定着ローラ表面に向かう磁界発生手段からの磁束は定着ローラに捕捉されるため、漏洩磁束になりにくい、定着ローラとは反対側の磁界発生手段からの磁束は漏洩しやすいという問題を有している。

【0004】本発明は、上記従来の問題を解決するものであって、磁界発生手段において発生する磁束の漏洩を防止することができる定着装置を提供することを目的とする。

## 【0005】

【課題を解決するための手段】そのために本発明の定着装置は、電磁誘導加熱により記録媒体上にトナーを定着する定着装置において、磁性体からなる定着ローラと、該定着ローラに押圧される加圧ローラと、前記定着ローラの外周に配設される磁界発生手段と、該磁界発生手段の定着ローラとは反対側に配設された磁束捕捉部材とを備えたことを特徴とする。

## 【0006】

【発明の実施の形態】以下、本発明の実施の形態を図面

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を参照しつつ説明する。図1は、本発明が適用される画像形成装置の1例を示す全体構成図である。この画像形成装置は、4色のトナーによりフルカラー画像を形成することができるカラー電子写真プリンタであるが、本発明はこれに限定されるものではなく、電子写真法を用いる全ての画像形成装置に適用可能である。

【0007】感光体1は、薄肉円筒状の導電性基材とその表面に形成された感光層とを有し、図示しない駆動手段によって図示矢印方向に回転駆動される。この感光体1の周囲には、その回転方向に沿って、感光体1を一緒に帯電するための帯電装置2、感光体1上に静電潜像を形成するための露光装置3、静電潜像を現像するための回転式現像装置4、感光体1上に形成された単色のトナー像を転写するための中間転写ドラム5および一次転写装置6が配設され、また中間転写ドラム5の外周には、中間転写ドラム5に形成された4色フルカラー像を記録媒体（紙等）上に転写するための二次転写装置7、記録媒体上に転写されたトナー像を定着するための定着装置9が配設されている。なお、10は記録媒体を収納する給紙トレイ、11は記録媒体搬送通路である。

【0008】回転式現像装置4は、イエロー用現像器4Y、シアン用現像器4C、マゼンタ用現像器4Mおよびブラック用現像器4Kが回転可能に構成されており、これらの現像器4Y、4C、4M、4Kは、感光体1の1回転毎に選択的に一つの現像器の現像ローラのみが感光体1に当接可能にされている。なお、各現像器にはそれぞれのトナーが収納されたトナー容器12（図では1つのタンクのみを示している）が配設されている。

【0009】上記構成からなる画像形成装置の作用について説明する。図示しないコンピュータからの画像形成信号が入力されると、感光体1、現像装置4の現像ローラおよび中間転写ドラム5が回転駆動される。まず、感光体1の外周面が帯電装置2によって一緒に帯電され、一緒に帯電された感光体1の外周面に、露光装置3によって第1色目（例えばイエロー）の画像情報に応じた選択的な露光がなされ、イエローの静電潜像が形成される。

【0010】感光体1には、イエロー用現像器4Yが回転され、その現像ローラが接触し、これによってイエローの静電潜像のトナー像が感光体1上に形成される。一次転写装置6には上記トナーの帯電極性と逆極性の一次転写電圧が印加され、感光体1上に形成されたトナー像が中間転写ドラム5上に転写される。このとき、二次転写装置7は中間転写ドラム5から離間されている。感光体1上に残留しているトナーは感光体クリーニング装置（図示せず）によって除去された後、感光体1の外周面は除電手段（図示せず）により除電される。

【0011】上記の処理が画像形成信号の第2色目、第3色目、第4色目に対応して、感光体1と中間転写ドラム5の1回転による潜像形成、現像、転写が繰り返さ

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れ、前記画像形成信号の内容に応じた4色のトナー像が中間転写ドラム5上において重ね合わされて転写される。そして、このフルカラー画像が二次転写装置7に達するタイミングで、記録媒体が搬送通路11から二次転写装置7に供給され、このとき、二次転写装置7が中間転写ドラム5に押圧されるとともに二次転写電圧が印加され、中間転写ドラム5上のフルカラートナー像が記録媒体上に転写される。そして、この記録媒体上に転写されたトナー像は定着装置9により加熱加圧され定着される。

【0012】本発明は、上記定着装置9に関わるものであり、図2～図5は、本発明の定着装置の1実施形態を示し、図2は定着装置の断面図、図3は図2でケースを取り外した状態を示す斜視図、図4は図2でX方向から見た一部破断面を示す側面図、図5(A)は磁界発生手段の平面図、図5(B)は図5(A)の側面図、図6は磁束捕捉部材の配置例を示す図である。なお、以下の説明において、各図面間で同一の構成には同一番号を付けて説明を省略する場合がある。

【0013】図2において、定着装置9は、磁性体からなる円筒状の定着ローラ13を備え、この定着ローラ13に加圧ローラ14が接触、押圧されている。加圧ローラ14は、筒状の回転軸15とその外周にシリコンゴム等の弾性層16を備え、定着ローラ13と加圧ローラ14が図示矢印に示す如く回転するとき、前記弾性層16が定着ローラ13に押圧されることによりニップ(加圧面)Nが形成されている。定着ローラ13の外周には、定着ローラ13と所定のギャップを置いて磁界発生手段17が配設されている。

【0014】定着ローラ13および磁界発生手段17は、非磁性体からなるケース21内に収納されている。磁界発生手段17の励磁コイル20は絶縁材料からなるコイル保持部材19に保持されており、コイル保持部材19は取付部材22によりケース21に固定されている。コイル保持部材19は、図3～図5にも示すように、定着ローラ13と所定のギャップを置いて且つ互いに間隔を設けて配設される2つの支持体19a、19bからなり、支持体19a、19bは複数の連結片19cにより連結されている。これによりコイル保持部材19の中央部に通気路24が形成されている。そして、励磁コイル20は、2つの支持体19a、19bの間で長円状のループが形成されるように支持されている。

【0015】ケース21には、励磁コイル20に対向する位置にフェライト等からなる磁束捕捉部材23が配設され、ケース21の外部に磁束が漏洩し他の電気回路への悪影響を防止している。また、ケース21には、吸気孔21aおよび排気孔21bが形成されている。定着ローラ13の外周には、ニップNの回転方向下流側に記録媒体を定着ローラ13から剥がすための剥離爪25が配設されている。なお、26は記録媒体搬送ガイド、27

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は記録媒体搬送ローラである。

【0016】図3および図4に示すように、定着ローラ13および加圧ローラ14は、それぞれ回転軸29、30によりケース21に回転自在に装着されている。定着ローラ13の回転軸29には駆動ギヤ31が固定され、駆動ギヤ31は図示しない電動モータにより回転駆動される。図4において、ケース21には、コイル20の側面に対向して磁束捕捉部材23cが設けられている。

【0017】図6は、本発明に係わる上記磁束捕捉部材23の配置例を示す図である。定着ローラ13の軸方向にループ状に配設された励磁コイル20に対し、励磁コイル20の上面20aおよび下面20bにコイルに平行にそれぞれ磁束捕捉部材23a、23bを配置し、励磁コイル20の側面20c、20dにコイルに平行に磁束捕捉部材23c、23dを配置している。このように、コイルで発生する磁束の向きに合わせて複数の磁束捕捉部材を配置することにより、より確実に漏洩磁束を捕捉することができる。また、磁束捕捉部材23は、コイル側ではなくケース21側に固定されるため、吸気孔21aから排気孔21bに流れる通気路および中央部の通気路32を流れる通気を確保することができる。さらに、磁束捕捉部材がコイル側に近接している場合には、本来ローラを加熱すべき磁束で磁束捕捉部材が加熱されるため、加熱効率が落ちるが、本発明においては、磁束捕捉部材がコイルと定着ローラとの距離より離れているため、有効に加熱することができる。

【0018】上記磁界発生手段17は、コイル保持部材19上に励磁コイル20がループ状に保持されており、磁界発生手段17は、定着ローラ13の外周面に沿ってほぼ平行で、定着ローラ13の軸方向に長い矩形或いは長円の外周に沿って巻かれている。これにより、コイル形成面と垂直に交差する磁力線は定着ローラ13表面にほぼ垂直に捕捉され、定着ローラ13表面を周回するような渦電流が生じ、発熱することになり、また、定着ローラ13軸方向の広範囲にわたる均一な温度上昇を実現させることができる。

【0019】また、励磁コイル20は、それぞれが磁気的な損失を受けにくくするために、複数の被覆細線の撚り線にすることにより、トータルで大電流を流して小さなコイルでもより効率的な加熱を可能にするとともに、撚り線にすることにより、線の剛性を高めコイルの作成を容易にしている。

【0020】また、励磁コイル20の各周回は、同一面内に位置するように、定着ローラ13の半径方向に1層に形成している。複数回巻かれているコイルのラインが定着ローラの半径方向に重なっている場合には、ローラに近い側のコイルの磁力で遠い側の磁力線を打ち消してしまうが、コイルの各周回が全てローラ表面に対峙することで、そのどれもが発する磁力線をローラが受け止めるため、発熱効率を高めることができる。また、励磁コ

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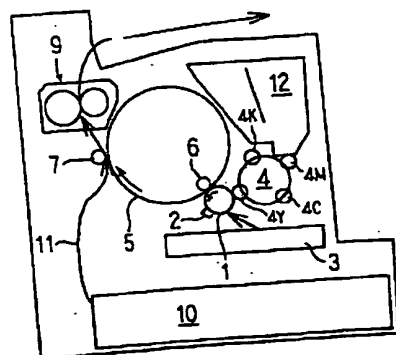
イル20の各周回は、コイル同士を隙間無く密に巻き、これにより太い線のコイルを形成したことで等価となり、効率の良い発熱が可能になるとともに、磁力線の打ち消し合う部分がなくなり、コイルと対峙するローラ面の均一な発熱が実現できる。

【0021】さらに、磁界発生手段17の中央部に通路32を形成できるため、励磁コイル20が冷却され、コイル温度上昇による発熱低下を防止することができる。また、コイル保持部材19、ケース21、搬送ガイド26等はすべて非磁性材料により構成している。磁界発生手段17の周囲に定着ローラ13以外に磁性材料があると、その磁性材料に磁力が集中し部分的に高温になるが、磁界発生手段17の隣接部材を非磁性材料で形成することにより、異常な磁力集中を防ぎ、均一な加熱とともに、他部材への加熱がなく定着ローラ13を効率良く加熱することができる。

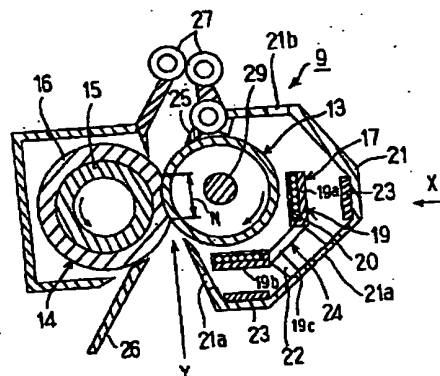
【0022】上記構成からなる本発明の作用について説明する。図示しない励磁回路により、励磁コイル20に交流電流を通電すると、励磁コイル20と定着ローラ13との間に交流磁界が発生し、交流磁界中に置かれた磁性体の定着ローラ13に電磁誘導作用により渦電流が流れ、その電流と金属自身の抵抗によりジュール熱が発生し、定着ローラ13それ自身が自己加熱され、その温度が上昇される。そして、定着ローラ13の回転が行われながらその温度が上昇され、温度センサ24の出力により所定の温度にまで昇温されたことを検出すると、その後は定着ローラ13の表面温度を所定の温度に維持するように制御される。記録媒体が定着ローラ13にまで移動されてくると、記録媒体は定着ローラ13と加圧ローラ14との間に導かれ、両ローラによって加熱、加圧され、これにより、トナーが記録媒体上に定着される。

【0023】以上、本発明の実施の形態について説明し

【图 1】



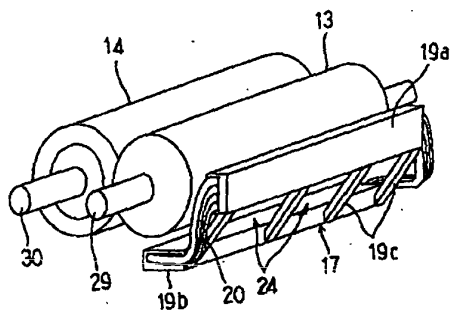
【图2】



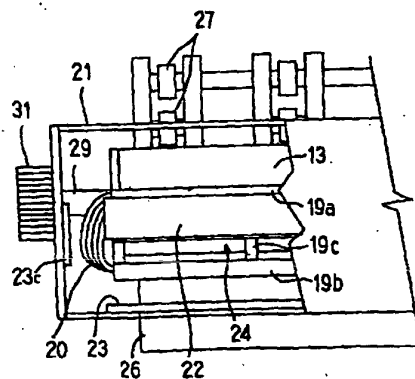
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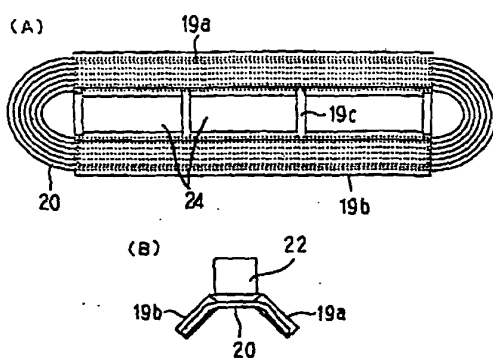
【図3】



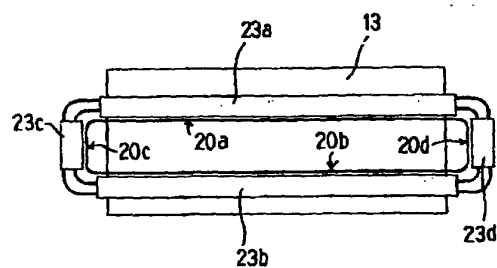
【図4】



【図5】



【図6】



**FIXING DEVICE**

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Inventor(s): FUJISAWA KAZUTOSHI  
Applicant(s): SEIKO EPSON CORP  
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EC Classification:  
Equivalents:

**Abstract**

**PROBLEM TO BE SOLVED:** To prevent magnetic flux generated at a magnetic field generation means from being leaked.

**SOLUTION:** This fixing device is constituted so that toner is fixed on a recording medium by electromagnetic induction heating and provided with a fixing roller 13 constituted of a magnetic body, a pressure roller 14 pressed to the roller 13, the magnetic field generation means 17 disposed at the outside circumference of the roller 13 and a magnetic flux capture member 23 disposed at the opposite side of the generation means 17 with respect to the roller 13.

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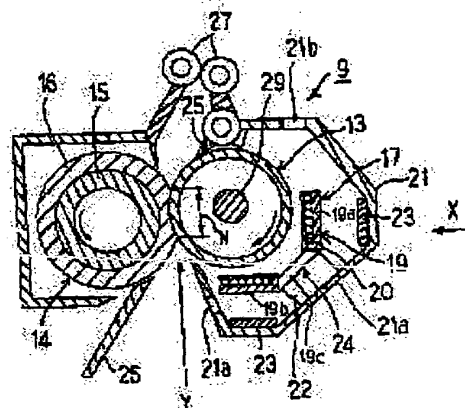
(72)Inventor : FUJISAWA KAZUTOSHI

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## LEGAL STATUS

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Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

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LAIMS

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Claim(s)

Claim 1] The magnetic field generating means arranged in the periphery of the fixing roller which consists of the magnetic substance, the pressurization roller pressed by this fixing roller, and the aforementioned fixing roller in the fixing equipment established in a toner on a record medium by electromagnetic-induction heating, and the fixing roller of this magnetic field generating means are fixing equipment characterized by to have the magnetic-flux capture member arranged in the opposite side.

Claim 2] Fixing equipment according to claim 1 characterized by dividing and arranging the aforementioned magnetic-flux capture member according to the sense of the exiting coil of a magnetic field generating means.

Claim 3] the aforementioned magnetic-flux capture -- the fixing equipment according to claim 2 characterized by setting up the distance from the exiting coil of a member more distantly than the distance of an exiting coil and a fixing roller

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## DETAILED DESCRIPTION

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### Detailed Description of the Invention]

[001]

The technical field to which invention belongs] this invention relates the toner image especially imprinted on the record medium to the fixing equipment established by electromagnetic-induction heating in image formation equipments, such as a copying machine which uses a xerography, a printer, and facsimile.

[002]

Description of the Prior Art] In the above-mentioned image formation equipment, after forming an electrostatic latent image on image supports, such as a photo conductor, and developing this electrostatic latent image in a toner image, it is made to \*\*\*\*\* the toner image which imprinted the toner image on the record medium and was imprinted on this record medium with fixing equipment. Conventionally, the method established by electromagnetic-induction heating as this fixing equipment is proposed variously. For example, in the patent No. 2616433 official report, the method which generates a magnetic field generating means in a fixing roller circularly along with the periphery except the contact portion with a pressurization roller is proposed.

[003]

Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional fixing equipment, since the magnetic flux from a magnetic field generating means to go to the fixing roller front face heated is caught by the fixing roller, although it cannot turn into magnetic leakage flux easily, with the fixing roller, the magnetic flux from the magnetic field generating means of an opposite side has the problem of being easy to reveal.

[004] this invention solves the above-mentioned conventional problem, and aims at offering the fixing equipment which can prevent disclosure of the magnetic flux generated in a magnetic field generating means.

[005]

Means for Solving the Problem] Therefore, it is characterized by to equip the fixing equipment of this invention with the magnetic-flux prehension member by which the magnetic field generating means arranged in the periphery of the fixing roller which consists of the magnetic substance, the pressurization roller pressed by this fixing roller, and the forementioned fixing roller in the fixing equipment established in a toner on a record medium by electromagnetic-induction heating, and the fixing roller of this magnetic field generating means were arranged in the opposite side.

[006]

Embodiments of the Invention] Hereafter, the gestalt of operation of this invention is explained, referring to a drawing. Drawing 1 is the whole block diagram showing one example of the image formation equipment with which this invention is applied. Although this image formation equipment is the color electro photographic printer which can form a full color picture with the toner of four colors, this invention is not limited to this and can be applied to all the image formation equipments using a xerography.

[007] A photo conductor 1 has a light-gage circle tubed conductive base material and the photosensitive layer formed on the front face, and a rotation drive is carried out in the direction of an illustration arrow by the driving means which are not illustrated. The circumference of this photo conductor 1 is met at the hand of cut. The middle imprint drum 5 and the primary imprint equipment 6 for imprinting the rotating type developer 4 for developing the aligner 3 for forming an electrostatic latent image on the electrification equipment 2 for a photo conductor 1 being charged uniformly and a photo conductor 1 and an electrostatic latent image and the toner image of the monochrome formed on the photo conductor 1 are arranged. Moreover, the fixing equipment 9 for the toner image imprinted on the secondary imprint equipment 7 for imprinting 4 color full color image formed in the middle imprint drum 5 on record media (paper etc.) and the record medium being established is arranged in the periphery of the middle imprint drum 5. In addition, the medium tray to which 10 contains a record medium, and 11 are record-medium conveyance paths.

[008] the rotating type developer 4 -- development counter 4 for yellow Y, and cyano one -- business -- development

under 4C and the object for Magentas -- development counter 4M and the object for blacks -- development counter 4K are alternatively made possible [ rotation ], and these development counters 4Y, 4C, 4M, and 4K are alternatively made possible [ the contact to a photo conductor 1 ] only for the developing roller of one development counter for every rotation of a photo conductor 1. In addition, the toner bottle 12 (only one tank is shown drawing) by which each toner is contained is arranged by each development counter.

009] An operation of the image formation equipment which consists of the above-mentioned composition is explained. An input of the image formation signal from the computer which is not illustrated carries out the rotation of the developing roller and the middle imprint drum 5 of a photo conductor 1 and a developer 4. First, of an image 3, the alternative exposure according to the image information of the 1st amorous glance (for example, yellow) is made by the peripheral face of the photo conductor 1 in which the peripheral face of a photo conductor 1 was charged uniformly, and was uniformly charged with electrification equipment 2, and the electrostatic latent image of yellow is formed in it.

010] Development counter 4Y for yellow rotates in a photo conductor 1, the developing roller contacts it, and the toner image of the electrostatic latent image of yellow is formed on a photo conductor 1 of this. The primary imprint image of the electrification polarity of the above-mentioned toner and reversed polarity is impressed to primary imprint equipment 6, and the toner image formed on the photo conductor 1 is imprinted on the middle imprint drum 5. At this time, secondary imprint equipment 7 is estranged from the middle imprint drum 5. After the toner which remains on a photo conductor 1 is removed by photo conductor cleaning equipment (not shown), the peripheral face of photo conductor 1 is discharged by the electric discharge means (not shown).

011] Corresponding to the 2nd amorous glance of an image formation signal, the 3rd amorous glance, and the 4th amorous glance, the latent-image formation by one rotation of a photo conductor 1 and the middle imprint drum 5, development, and an imprint are repeated, the toner image of four colors according to the content of the above-mentioned image formation signal piles up on the middle imprint drum 5, and it lets the above-mentioned processing see, and it is imprinted. And to the timing to which this full color picture reaches secondary imprint equipment 7, at this time, a record medium is supplied to secondary imprint equipment 7 from the conveyance path 11, while secondary imprint equipment 7 is pressed by the middle imprint drum 5, secondary imprint voltage is impressed, and the full color toner image on the middle imprint drum 5 is imprinted on a record medium. And heating pressurization is carried out by fixing equipment 9, and it is fixed to the toner image imprinted on this record medium.

012] this invention is a thing in connection with the above-mentioned fixing equipment 9. drawing 2 - drawing 5 The perspective diagram in which showing 1 operation gestalt of the fixing equipment of this invention, and showing the state where drawing 2 removed the cross section of fixing equipment by drawing 2, and drawing 3 removed the case, the side elevation and drawing 5 (A) which looked at drawing 4 from X by drawing 2 and which show the fracture surface in part -- the plan of a magnetic field generating means, and drawing 5 (B) -- the side elevation of drawing 5 (A), and drawing 6 -- magnetic-flux prehension -- it is drawing showing the example of arrangement of a member. In addition, in the following explanation, the same number may be attached to the same composition between each drawing, and explanation may be omitted.

013] In drawing 2, fixing equipment 9 is equipped with the fixing roller 13 of the shape of a cylinder which consists of the magnetic substance, and the pressurization roller 14 is touched and pressed by this fixing roller 13. The pressurization roller 14 equips the tubed axis of rotation 15 and its periphery with the elastic layers 16, such as silicone rubber, and when the fixing roller 13 and the pressurization roller 14 rotate, and the aforementioned elastic layer 16 is pressed by the fixing roller 13, Nip (pressurization side) N is formed [ as shown in an illustration arrow, ]. The fixing roller 13 and a predetermined gap are put on the periphery of the fixing roller 13, and the magnetic field generating means 17 is arranged in it.

014] The fixing roller 13 and the magnetic field generating means 17 are contained in the case 21 which consists of non-magnetic material. the exiting coil 20 of the magnetic field generating means 17 is held to the coil attachment component 19 which consists of an insulating material -- having -- \*\*\*\* -- the coil attachment component 19 -- attachment -- it is being fixed to the case 21 by the member 22. As the coil attachment component 19 is shown also in drawing 3 - drawing 5, the fixing roller 13 and a predetermined gap are placed, and it consists of two base materials 19a and 19b which prepare an interval mutually and are arranged, and base materials 19a and 19b are connected by two more piece of connection 19c. Thereby, the aeration way 24 is formed in the center section of the coil attachment component 19. And the exiting coil 20 is supported so that an ellipse-like loop may be formed between two base materials 19a and 19b.

0015] the magnetic-flux prehension which becomes the position which counters a case 21 at an exiting coil 20 from a ferrite etc. -- the member 23 was arranged, magnetic flux was revealed to the exterior of a case 21, and the bad influence to other electrical circuits is prevented moreover -- a case 21 -- inhalation of air -- hole 21a and exhaust air

le 21b are formed The ablation presser foot stitch tongue 25 for removing a record medium from the fixing roller 13 arranged in the hand-of-cut downstream of Nip N by the periphery of the fixing roller 13. In addition, 26 is a record-medium conveyance guide and 27 is a record-medium conveyance roller.

016] As shown in drawing 3 and drawing 4 , the case 21 is equipped with the fixing roller 13 and the pressurization roller 14 free [ rotation ] by the axes of rotation 29 and 30, respectively. The drive gear 31 is fixed to the axis of rotation 29 of the fixing roller 13, and the rotation drive of the drive gear 31 is carried out by the electrical motor which is not illustrated. drawing 4 -- setting -- a case 21 -- the side of a coil 20 -- countering -- magnetic-flux prehension -- a member -- 23c is prepared

017] the above-mentioned magnetic-flux prehension concerning this invention in drawing 6 -- it is drawing showing an example of arrangement of a member 23 the exiting coil 20 arranged by the shaft orientations of the fixing roller 13 the shape of a loop -- receiving -- upper surface 20a and inferior-surface-of-tongue 20b of an exiting coil 20 -- a coil parallel -- respectively -- magnetic-flux prehension -- Members 23a and 23b -- arranging -- the sides 20c and 20d of exiting coil 20 -- a coil -- parallel -- magnetic-flux prehension -- Members 23c and 23d are arranged Thus, magnetic flux can be more certainly caught by arranging two or more magnetic-flux prehension members according to the sense of the magnetic flux generated with a coil. moreover, magnetic-flux prehension -- since a member 23 is fixed to the case [ not a coil but ] 21 side -- inhalation of air -- the aeration which flows the aeration way which flows to exhaust hole 21b, and the aeration way 32 of a center section is securable from hole 21a Furthermore, in this invention, since a magnetic-flux prehension member is heated by the magnetic flux which should originally heat a roller when the magnetic-flux prehension member is close to a coil side, although heating efficiency falls, since the magnetic-flux prehension member is separated from the distance of a coil and a fixing roller, it can heat effectively.

018] The exiting coil 20 is held in the shape of a loop on the coil attachment component 19, the above-mentioned magnetic field generating means 17 of the magnetic field generating means 17 is almost parallel along with the peripheral face of the fixing roller 13, and it is wound around the shaft orientations of the fixing roller 13 along with the periphery of a long rectangle or an ellipse. Thereby, it can be mostly caught by the perpendicular on fixing roller 13 front face, an eddy current which goes fixing roller 13 front face around can arise, and the line of magnetic force which intersects a coil forming face and a perpendicular can make the uniform temperature rise in it will generate heat and reaching [ fixing roller 13 ] realize.

019] Moreover, by making it a strand wire, it raises the rigidity of a line and makes creation of a coil easy while an exiting coil 20 is total, can pass a high current and enables heating also with a more efficient small coil by making it the strand wire of two or more covering thin lines, in order that each may make magnetic loss hard to receive.

020] Moreover, each circumference of an exiting coil 20 is formed in radial [ of the fixing roller 13 ] at one layer so that it may be located in the same side. although the line of magnetic force of a far side will be negated by the magnetism of the coil of the side near a roller when the line of the coil currently rolled two or more times has lapped with radial [ of a fixing roller ], the whole of each circumference of a coil stands face to face against a roller front face -- which [ the ] -- although -- since a roller catches the line of magnetic force to emit, exoergic efficiency can be raised moreover, the portion of each circumference of an exiting coil 20 which line of magnetic force negates mutually is lost, and it can realize uniform generation of heat of the roller side which stands face to face against a coil while rolling coils densely without a crevice, becoming equivalent to this having formed the coil of a thick line and attaining efficient generation of heat.

021] Furthermore, since the aeration way 32 can be formed in the center section of the magnetic field generating means 17, an exiting coil 20 is cooled and the exoergic fall by the coil temperature rise can be prevented. Moreover, the non-magnetic material constitutes all of the coil attachment component 19, a case 21, and conveyance guide 26 made. If a magnetic material is in the circumference of the magnetic field generating means 17 in addition to fixing roller 13, although magnetism will concentrate on the magnetic material and it will become an elevated temperature locally, by forming the contiguity member of the magnetic field generating means 17 with a non-magnetic material, unusual magnetism concentration is prevented, with uniform heating, there is no heating to other members and the fixing roller 13 can be heated efficiently.

022] An operation of this invention which consists of the above-mentioned composition is explained. By the excitation circuit which is not illustrated, if alternating current is energized to an exiting coil 20, an alternating current magnetic field will occur between an exiting coil 20 and the fixing roller 13, an eddy current flows by electromagnetic induction operation on the fixing roller 13 of the magnetic substance placed into the alternating current magnetic field, the Joule's heat occurs by resistance of the current and metal itself, the self-heating of fixing roller 13 itself is carried out, and the temperature rises. And while rotation of the fixing roller 13 is performed, the temperature rises, and if it detects that the temperature up was carried out even to predetermined temperature by the output of a temperature sensor 24, it will be controlled to maintain the skin temperature of the fixing roller 13 to predetermined temperature

er that. If a record medium is moved even to the fixing roller 13, a record medium is led between the fixing roller 13 and the pressurization roller 14, and with both rollers, it will be heated and pressurized and, thereby, will be fixed to a record medium.

023] As mentioned above, although the form of operation of this invention was explained, this invention is not limited to this and various change is possible for it. For example, in the above-mentioned operation form, although the example which has arranged the fixing roller 13 and the pressurization roller 14 horizontally mostly, and made the conveyance direction Y of a record medium perpendicularly [ abbreviation ] it goes on a lower shell is shown, the fixing roller 13 and the pressurization roller 14 are arranged mostly perpendicularly, and it is good also considering the conveyance direction Y of a record medium as an abbreviation horizontal direction.

024]

Effect of the Invention] According to this invention, disclosure of the magnetic flux generated in a magnetic field generating means can be prevented so that clearly from the above explanation. Moreover, since cooling of a coil is not required and a magnetic-flux capture member is not heated, heating efficiency can be raised.

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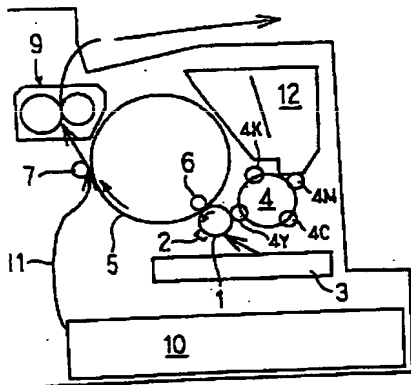
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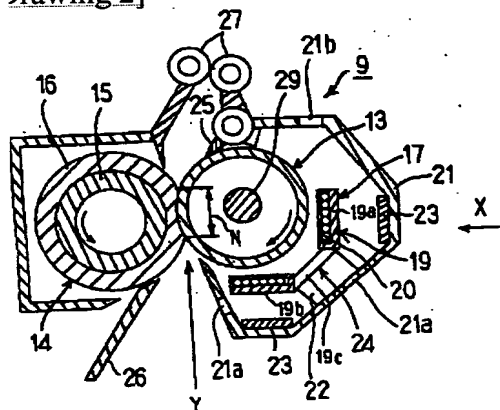
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## DRAWINGS

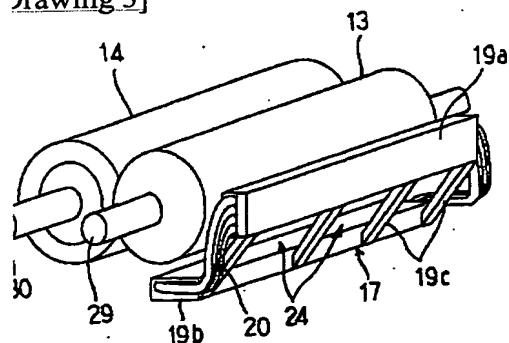
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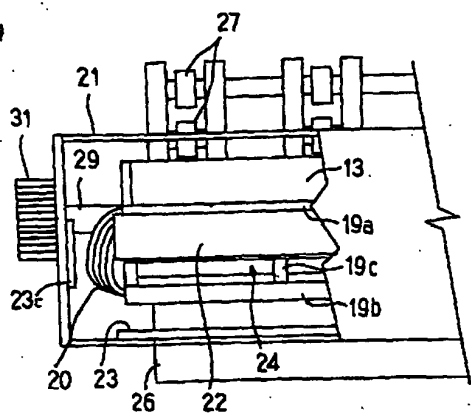
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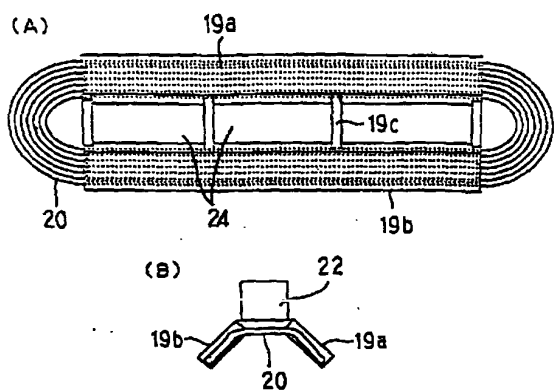
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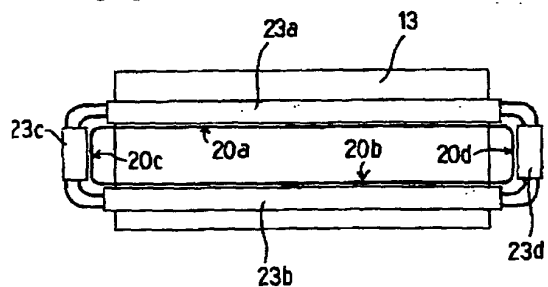
Drawing 4]



Drawing 5]



Drawing 6]



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